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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2004903041 for a patent by CTECH CLOSURES PTY LTD as filed on 07 June 2004.

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Twelfth day of August 2004

J. Billingsley

JULIE BILLINGSLEY
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SUPPORT AND SALES

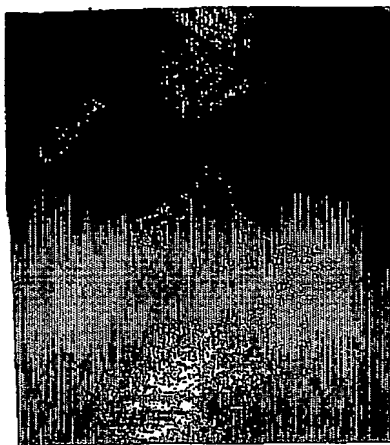
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Tamper evident closure with improved tamper evident means and with dispensing means for dispensing the contents of a container in a controlled or limited manner and a re-usable tamper proof cover for the dispensing means.

There is prior art for dispensing closures such as US Patent 5,507,416 and US Patent 4,967,491 and there also exists extensive prior art for tamper evident closures and means of manufacture thereof for example US Patents 6,640,988 and 6,551,093 . All of said patents are hereby incorporated in this application.

Prior art dispensing closures such as the conical caps displayed on web site at <http://www.creativepkg.com/twist-top/twist-top.html> -



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These prior art closures do not have tamper evident covers and therefore the dispensing orifice at the top of the conical cap is open to airborne or handling or other contaminant vectors such as insects during pre sale shelf life and during period of use. A cellophane type seal could be used but this does not afford protection after initial opening.

The closures themselves are not tamper evident and the absence of tamper evidence is twofold Firstly because the moulds to produce these caps are quite complex and the further complication of moulding tamper evidence features on the closure would prove extremely difficult, if not impossible by conventional means. Secondly because most closures in the market today lose seal before tamper evidence occurs.

Industry practice with this type of closure has heretofore been that where tamper evidence is required a foil or pressure sensitive coated liner is inserted into the closure and sealed to the container neck opening by means of either pressure exerted by the closure on application to the neck or by an induction heating device. This is an expensive process requiring additional materials and processes

The design of the closure is such that products in containers on which the closure is used are invariably stored with the product at the opposite end to the dispensing orifice thus often requiring an annoying delay for thicker products to flow from the base to the dispensing orifice each time it is used.

The present invention is intended to address the foregoing shortcomings thus being more convenient to use.

We refer to a non-limiting description of the present invention as follows:-

A closure for a container with improved tamper evident means such that the tamper evidence means operates properly and effectively before the seal between closure and container is lost and a dispensing means portion of the said tamper evident closure to dispense the contents of the container to which the closure is affixed. Said dispensing means being a dispensing cap which has a fully open and fully closed and variable open positions between fully open fully closed. Said dispensing cap also has means for attaching a cover and

a tamper evident cover which protects the dispensing means from accidental or malicious contamination prior to removal of the tamper evident cover by a consumer. The said tamper evident cover is re-usable and easily re-engaged onto the closure or dispensing means in any open or closed position thereby providing continuing convenient protection for the said dispensing means without the need to open and close the dispensing means at each use of the product dispensed or

a tamper evident cover which protects the dispensing means from accidental or malicious contamination prior to removal of the tamper evident cover by a consumer. Said tamper evident cover having frangible bridges connecting the tamper evidence means to the cover body and said frangible bridges being broken and the cover thereby separated from the tamper evidence means by rotating the said cover in the same direction as to open the dispensing cap and the dispensing cap then operating and lifting away from the closed position thereby breaking the frangible bridges. The said tamper evident cover is re-usable and easily re-engaged onto the dispensing cover by way of features such as fins or lugs on the said cover shaped which are shaped so as to engage onto the dispensing cap so that the said dispensing cap may be manipulated from the closed to the open position and if open manipulated to a closed position by rotating the re-attached cover.

We disclose the following non-limiting examples

Fig. 1 shows a cross sectional view through the centre of a closure 10 having a top wall circular disc 20 with a depending annular skirt 30 with threads 32 co operating with container neck threads 68 and with a depending annular tamper evident ring 55 a dispensing means core 208 manufactured as part of closure 10 extending above top surface 11 of top wall 20 and said core 208 having more than 1 dispensing cap lifting ramps 209 and dispensing cap lowering ramps 201 and annular wall 207 and retention feature 202 and spigot post 205 said spigot post having wall 206 and spigot post support 203 . typically there are 3 of said spigot post supports

Fig. 2 shows a cross section through the centre of a closure 10 with a conical dispensing cap 300 and a tamper evident cover 400. Said conical dispensing cap 300 having Sealing feature 301 and more than one recess 304 to provide a knurled finish to provide gripping means when turning the dispensing cap to close or open position and sealing feature 302 which is sealingly in contact with annular wall 207 throughout the opening and closing movement of the dispensing cap to provide a seal to prevent leakage of container contents from orifice 204 along wall 207 . Sealing feature 302 is restrained by retention feature 202 Fig.2 so that the dispensing cap cannot inadvertently be removed from the closure.

a lifting ramp engagement feature (not shown) which engages with the lifting ramp 209 Fig 1. and upon rotation of the dispensing cap in an opening direction lifts the dispensing cap 300 in direction 'O' to an open position and annular closing ramp engagement feature 303 which in co-operation with closing ramp 201 upon closing rotation causes the dispensing cap to be moved in the closing direction 'C' and annular orifice 305 of diameter 'K' which diameter is smaller than the outside diameter of spigot post 205 such that upon rotation in the direction of closing sealing feature 301 sealingly engages wall 206 thereby providing a positive closure of the container contents from the atmosphere.

Annular base 306 which may have on its outer wall 307 shaped areas (not shown) which co-operatively engage with corresponding features (not shown) on inner wall 405 of cover 400 such that the rotation of the said cover will cause the said annular base to rotate.

Said tamper evident cover 400 having circular top wall 403 and depending therefrom Annular skirt 404 having Engagement feature 401 which may be an annular ring or consist of more than 1 individual feature. Said feature or features engage the upper surface of annular base 306 of dispensing cap 300 thereby locating the said cover on said annular base and inner wall 405 which may have shaped areas (not shown) which co-operate with corresponding features (not shown) on outer wall 307 of dispensing cap 300 to provide locking engagement of cover 400 with dispensing cap 300. In an alternative arrangement shown in Fig. 4 cover 400 may also be located or in locked engagement with dispensing cap 300 by means of one or more of one or both co-operating projections and co-operating recesses on annular base 306 and lower wall 408. Said projections and recesses being numbered 308 and 309 on annular base 306 and 409 and 410 on lower wall 406 and more than one frangible bridge 402 which have depending from them an annular or other tamper evidence ring or means (not shown) which engage with corresponding features such as the types shown at 13 and 14 on top wall 20.

As an alternative to shaping inner wall 405 the cover 400 may also be designed to lockingly engage with the dispensing cap 300 after operation of the tamper evidence feature there may be depending from top wall 403 more than one locating engagement fin 407 (dotted line and shaded) which engage with recesses 304. Said engagement locating fins may be formed on the inner wall of a cylindrical shape 406 (dotted line) depending from the top wall 403.

Fig. 3 shows a plan view of closure 10 including top wall surface 11 lowering ramp 201 spigot post support 203 orifice 204 spigot post 205 lifting ramp 209

Fig. 4 shows a cross sectional view of cover 400 engagement means 409,410 engaging with dispensing cap 300 engagement means 308, 309 after tamper evident means (including known means not shown) has been separated from lower extremity of wall 404 for example at frangible bridges 402. Said engagement or locking engagement means are intended to allow the dispensing cap 300 to be turned from the closed to the open position and open to closed position by gripping and turning the cover and at the first said turning to open to cause by axial movement of the cover 400 whilst tamper evident means is restrained in engagement with projections or recesses such as 13 and 14 (Fig. 2) on the upper wall 11 (in Fig.1) of and or lifting movement as the dispensing cap engages lifting ramps (209 in Fig. 1) to thereby sever the frangible bridges 402.

Fig. 4 also shows an additional or alternate means of engagement 412 to engage or locate or lock cover 400 and dispensing cap 300 and displays the concept of having the diameter of top wall 403 extend beyond depending wall 404 such that the diameter of top wall 403 may be increased to provide a more secure base on which to stand the package when it is desired to orient the package to drain the container contents by gravity towards the dispensing orifice.

Explanation of the improved tamper evident means may be found in earlier provisional applications by the undersigned which are hereby incorporated in this application.

Those skilled in the art may discover other examples without departing from the present invention.


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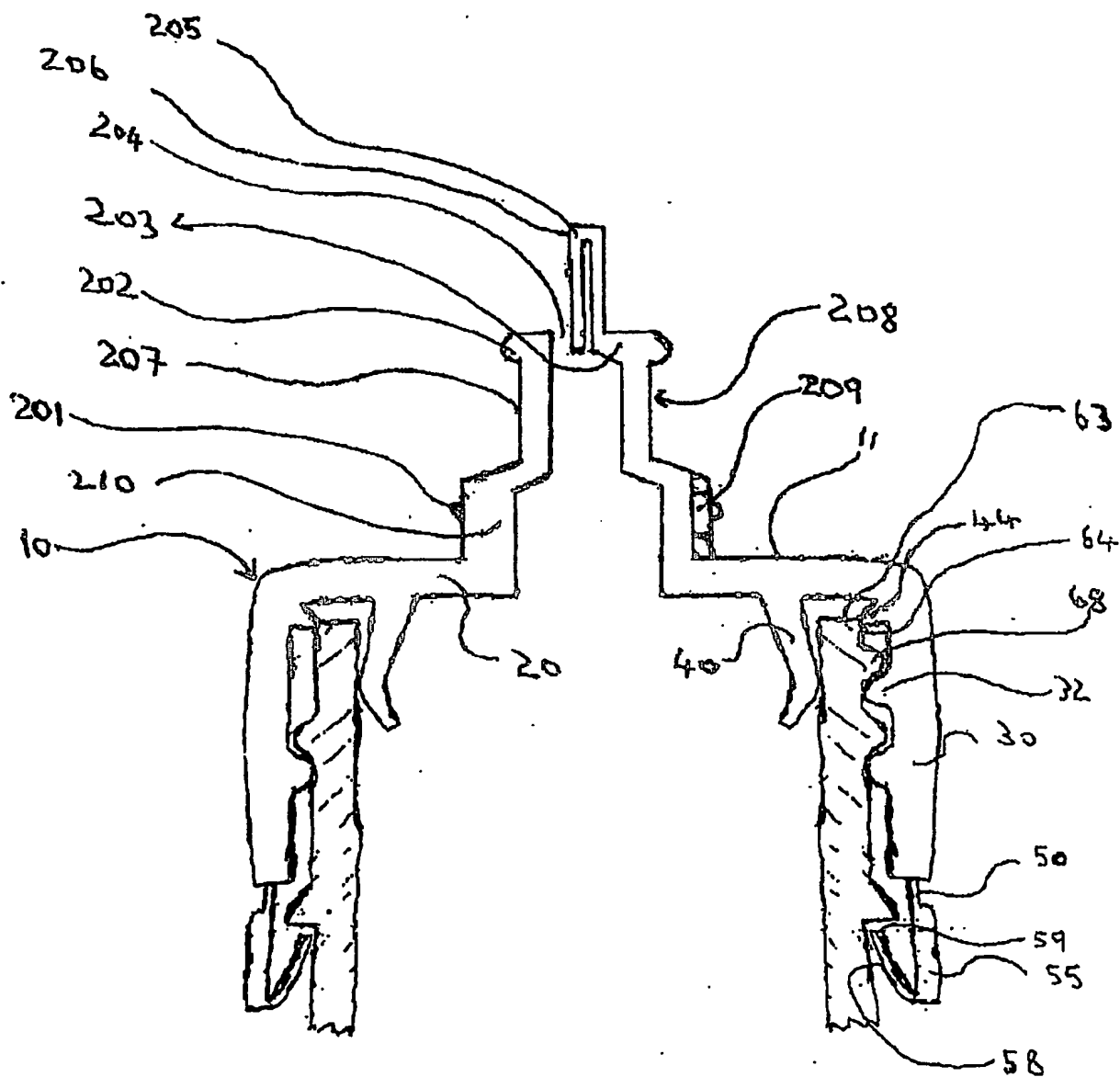


FIG 1.

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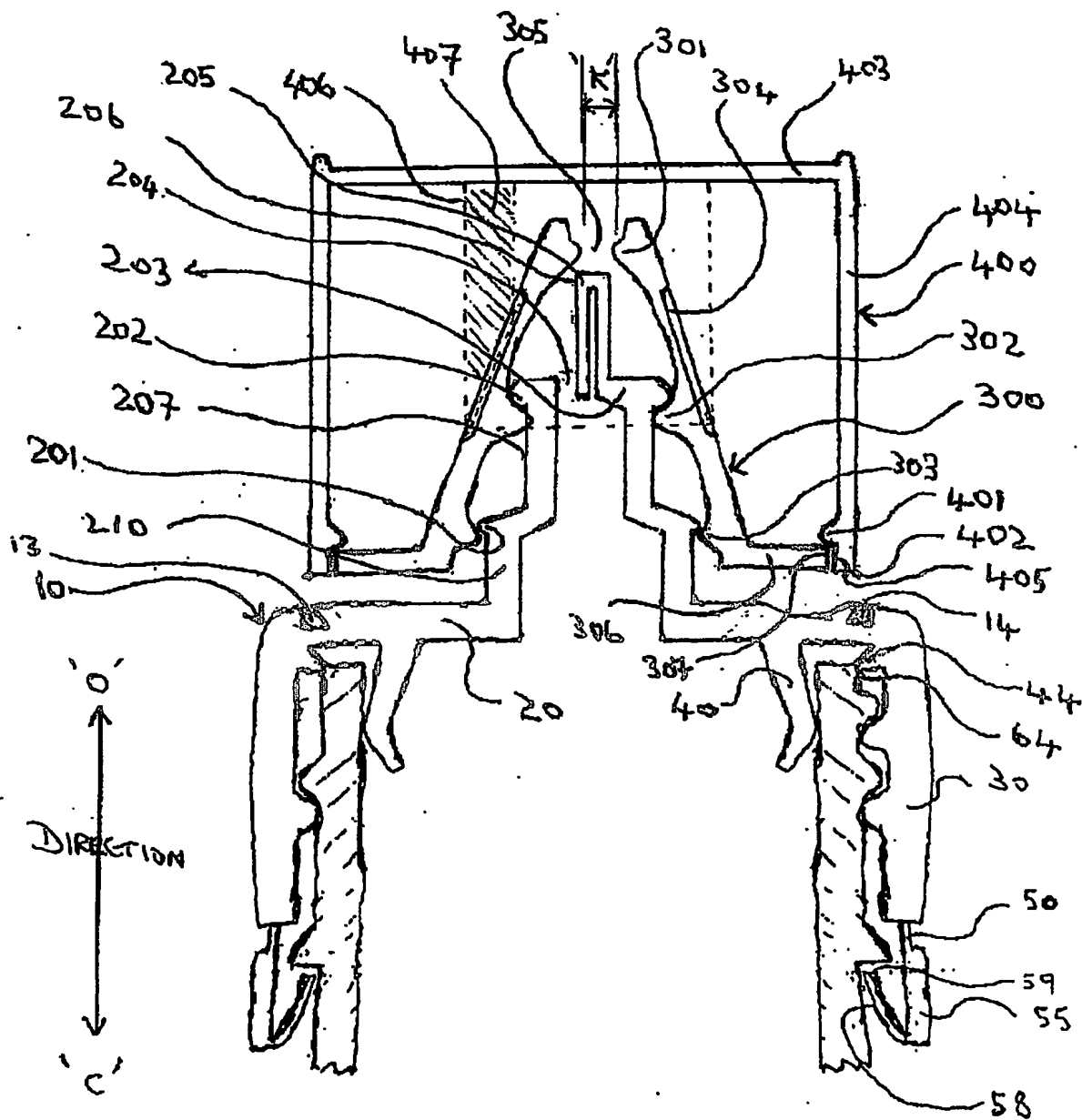


FIG. 2.

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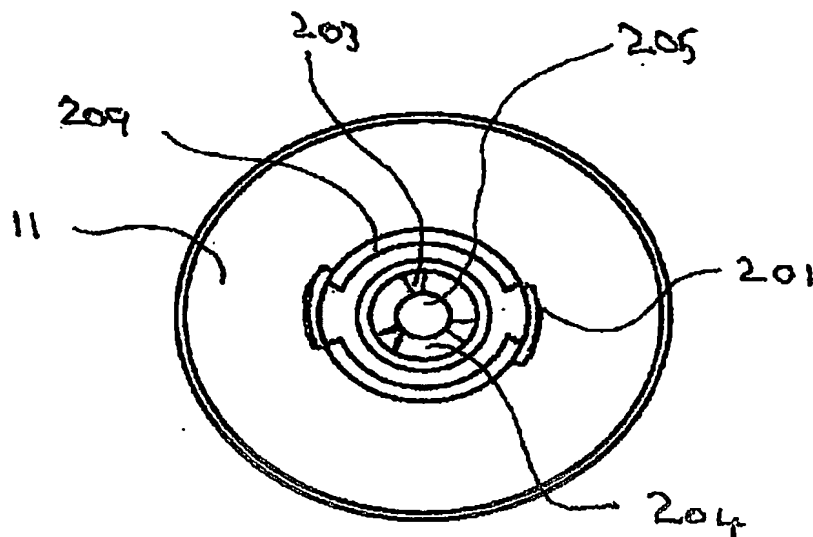


FIG 3.

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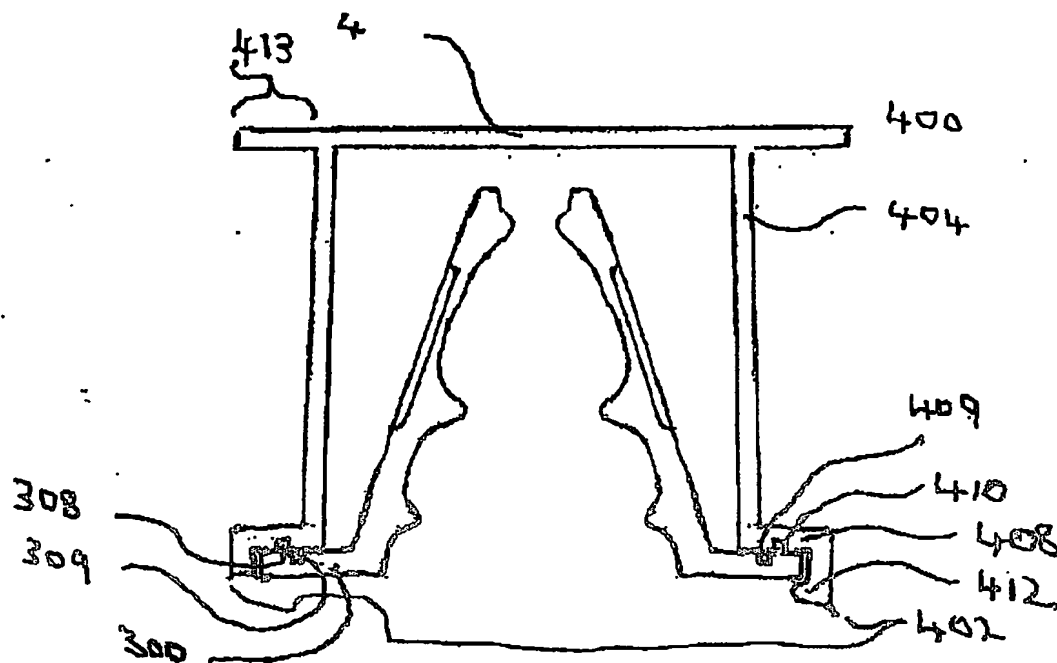


FIG. 4.

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